

REMARKS

Claims 1 - 2 and 5 - 26 are pending in the above-identified application. Claims 15 - 26 are withdrawn from consideration.

In the Office Action of November 18, 2003, Claims 1 - 14 were rejected. No claim was allowed. In response, Claim 5 is canceled and Claims 1, 8 and 11 - 14 are amended to clarify the features of the present invention. Reexamination and reconsideration are respectfully requested in view of the foregoing amendments and the following remarks.

Request for Entry of Amendments

The amendments presented herein are limited to amending the claims grammatical clarity or to incorporating limitations of dependent claims into Claim 1. Specifically, Claim 1 is amended to provide that the adhesive is applied by spraying, as is provided in Claim 2, and to provide that in the method of bending a laminated material, the bending of the first surface plate is performed by sucking the other end of the first surface plate by a base positioned at the other end of the first surface plate and moving the base so that the first surface plate is moved in a direction to separate it from the core material, as provided in canceled Claim 5. Claims 8 and 11 - 12 are amended to comply with requirements of form or to overcome a rejection of indefiniteness as set forth in the Office Action. Entry of the foregoing amendments under 37 CFR 1.116 is respectfully requested.

Rejection of Claims 1 - 14 under 35 U.S.C. §112, second paragraph

Claims 5 and 8 were rejected under 35 U.S.C. §112, second paragraph, as

being indefinite.

Regarding claim 5, the Examiner alleged that it is unclear what is meant by "moving said base on said...plate" In response, (the limitations of Claim 5 having been moved to Claim 1), Claim 1 is amended to provide that the base is moved so that the other end of said first surface plate is moved toward the direction separating from said core material.

Further, Claim 1 is amended for clarity to specify that the base referred to in line 3 is a "first" base, and the base referred to in the added limitation is a "second" base.

Regarding Claim 8, the Examiner alleges that it is unclear which base is meant in line 5. In response, Claim 8 is amended to provide that the base referred to is the second base.

Accordingly, it is respectfully submitted that all of the rejections under 35 U.S.C. §112, second paragraph, are thereby overcome.

Objections to the Claims

Claim 12 was objected to on the grounds that "the" in line 3 should be "to". In response, this correction is made to Claim 12, and also to Claims 11, 13 - 14, to which the same objection could apply. Accordingly, the objection to the claims is thereby overcome.

Rejection of Claims 1 - 14 under 35 U.S.C. §103(a) over Palfey in view of Banks

Claims 1 - 14 were rejected under 35 U.S.C. 103(a) as being obvious over Palfey et al (U.S. Patent No. 4,078,959) in view of Banks et al. (U.S. Patent No.

6,036,802) The Office Action alleges that Palfey discloses forming a bent laminate for specialized vehicles by bending a foam core and panel in a direction and then bending the second panel in the same direction so it forms the outer layer and attaching it to the core via adhesive. The Examiner alleges that the reference also discloses that it is known in the art to bend a core and a first panel in a direction and then attach a second panel as the inner layer. The Examiner alleges that one in the art reading the reference as a whole would appreciate that the method of Palfey could be used to form a smooth inner panel by bending the inner panel and then the core and second panel laminate since the prior art allegedly discloses that bending the core and laminate and then attaching the inner panel. The Examiner acknowledges that the reference is silent as to the equipment used to bend the laminate. The Examiner alleges that Banks discloses an apparatus for forming a bend in a laminate for airplane interiors by holding one end of the laminate via vacuum while bending the other end. The Examiner takes the position that it would have been obvious to use the apparatus of Banks to bend the laminate of Palfey since Palfey is silent as to the equipment required and since Banks is directed to form a bend in the same type of laminate structure particularly since Banks allegedly discloses the apparatus can be used for foam core panels as well as honeycomb core. Regarding claims 2 and 3, the Examiner alleges that Palfey discloses that the adhesive is sprayed on both the panel and the core. Regarding claim 4, the Examiner alleges that one in the art would appreciate that could be applied in any conventional pattern such as in the width direction. Regarding claims 5 and 7, the Examiner acknowledges that Banks does not disclose pulling the first panel into the bend via sucking. However, the Examiner alleges that it does disclose using a

vacuum to hold panels in place. The Examiner alleges that one in the art reading the references as a whole would appreciate that vacuum could be used to bend the panel prior to bending the core since Palfey discloses the panel is bent and since Banks discloses it is known to use vacuum to move items. Regarding claim 8, the Examiner alleges that one in the art would appreciate that since the bend formed in the panel is arc shaped, the apparatus used to form the bend would be arc shaped to ensure the proper curvature. Regarding claim 9, the Examiner acknowledges that the references are silent as to bending the core with a roller. The Examiner alleges that the use of a roller to press something into a shape is well-known and conventional in the bonding arts and takes the position that it would have been obvious for that reason. Regarding claim 14, the Examiner alleges that while Banks does not specifically disclose a honeycomb panel with foam in the cells, it does disclose a foam panel and a honeycomb panel and that the apparatus can be used for other types of commonly used panels. The Examiner takes the position that it would have been obvious to bend a honeycomb panel with foam in the cells since it is a well-known type of panel and since Banks discloses that the apparatus can be used for any type of panel.

This rejection is traversed. The present invention, as shown in Figures 1 - 3 and as set forth in independent Claims 1 and 11 - 14 relates to a method of bending a laminated material wherein, on the end of the material where the bend is made, a first surface plate is moved to separate it from the base and create a bend. Then, after adhesive is applied, the remainder of the laminated material, which consists of the core material and the second surface plate, is bent so that it adheres to the first surface plate. By this method, it can be seen that the character of the curve will

depend on just how the first surface plate is bent, since the remainder of the laminated material is bent to match the bend that is put into the first surface plate.

Contrary to what is asserted by the Examiner, this method is neither disclosed nor suggested by the cited references, even taking into account the general statements in Palfey regarding methods known in the art. In Palfey, a laminated material is bent by separating the surface on what will become the convex side of the bend, bending the laminated material and then reattaching the separated surface. Palfey mentions that methods are known in the art wherein a core material is first laminated only on the side that will become the convex side of the bend, the laminated material is bent, and then the unlaminated surface, which is on the concave side of the bend, is laminated. These methods are clearly different from the method of the present invention, because they do not have the feature that a first surface on one end of the laminated material is separated and bent [to form a curve] and then the rest of the core material/second surface is bent so that the core material reattaches to the first surface. In other words, the core material/second surface is bent to take the shape of the bent, detached first surface, and not vice versa. The Examiner alleges that one in the art reading the reference as a whole would appreciate that the method of Palfey could be used to form a smooth inner panel by bending the inner panel and then the core and second panel laminate since the prior art allegedly discloses that bending the core and laminate and then attaching the inner panel is known in the art. However, the Examiner has not provided any reason or motivation, beyond the Applicant's disclosure, for a person skilled in the art to modify the method of Palfey by bending the inner panel and then the core and second panel laminate, and the allegations by the Examiner are merely

hindsight based on the Applicant's disclosure.

Likewise, Banks does not disclose or suggest any method according to the present invention and does not supply any limitation missing from the Palfey reference. Banks discloses a process wherein a surface of a laminated material is heated to form a bubble that detaches from the core material at the point where the material is bent. Thereafter, extra material in the bend is formed into a flap that is collapsed and folded. The only relevance that Banks has to the present invention is that it shows a process in which one end of a material is held while the other end is bent. Banks does not disclose or suggest any method wherein a first surface on one end of the laminated material is separated and bent and then the rest of the core material/second surface is bent so that the core material reattaches to the first surface.

Moreover, independent Claim 1 is amended to include the limitation of Claim 5 that, in the method of bending a laminated material, the bending of the first surface plate is performed by sucking the other end of the first surface plate by a base positioned at the other end of the first surface plate and moving the base so that the first surface plate is moved in a direction to separate it from the core material. The Examiner alleges that a person skilled in the art would appreciate that a vacuum could be used to bend the panel prior to bending the core. However, the only support given for this allegation is that Palfey discloses that a panel is bent and Banks discloses that a vacuum is used to move items. Clearly, these disclosures do not add up to the present invention. As noted above, Palfey does not disclose or suggest a method of bending a laminated material wherein, on the end of the material where the bend is made, a first surface plate is moved to separate it from

the base and create a bend and then, after adhesive is applied, the remainder of the laminated material, which consists of the core material and the second surface plate, is bent so that it adheres to the first surface plate. Although Banks discloses a vacuum to hold panels in place or move panels into position, the reference does not disclose or suggest any method wherein a vacuum is used as a force for bending a material. Combining the two references would not lead a person skilled in the art to the invention of independent Claim 1. The Examiner's allegation that a person skilled in the art would appreciate that a vacuum could be used to bend the first panel prior to bending the core is clearly based on hindsight based on the Applicant's disclosure.

Further, regarding Claims 8, 11, 12, 13, and 14, there is no motivation in either Palfey or Banks for bending a detached first surface into an arc-shape or fixing a first surface onto an arc-shaped apparatus to create an arc-shape because in these references, the shape of a detached surface has no relevance to the shape of the finished product. In contrast, in the present invention, the shape of the detached first surface is relevant, because in subsequent steps, the rest of the core material/second surface is bent so that the core material reattaches to the first surface. Therefore, the finished product has the shape and curvature that was first imparted to the detached first surface.

. Accordingly, it is respectfully submitted that Claims 1 - 2 and 6 - 14 would not have been obvious over Palfey and Banks, alone or in combination. (Claims 3 - 5 have been canceled.)

Rejection of Claims 1 - 14 under 35 U.S.C. §103(a) over Banks in view of Palfey

Claims 1 - 14 were rejected under 35 U.S.C. 103(a) as being obvious over Banks in view of Palfey. The Office Action alleges that Banks discloses an apparatus for forming a bend in a laminate for airplane interiors by holding one end of the laminate via vacuum while bending the other end and that a portion of the inner panel is heated to disbond the adhesive and pulled from the laminate. The Examiner acknowledges that the reference does not disclose heating and pulling all of the inner panel from the bend to the edge of the panel. The Examiner alleges that Palfey discloses forming a bent laminate for specialized vehicles by bending a foam core and panel in a direction and then bending the second panel in the same direction so that it forms the outer layer and attaching it to the first via adhesive to form an attractive surface. The Examiner takes the position that it would have been obvious to heat and remove the portion of the inner panel of Banks extending from the bend to the edge and re-applying it after bending since this would form a more attractive appearance as desired by Banks. Regarding claims 2 and 3, the Examiner alleges that Palfey discloses that the adhesive is sprayed on both the panel and the core. Regarding claim 4, the Examiner alleges that one in the art would appreciate that method could be applied in any conventional pattern such as in the width direction. Regarding claims 5 and 7, the Examiner acknowledges that Banks does not disclose pulling the first panel into the bend via sucking. The Examiner alleges that the reference does disclose using a vacuum to hold panels in place. The Examiner alleges that one in the art reading the references as a whole would appreciate that vacuum could be used to bend the panel prior to bending the core since Palfey discloses that the panel is bent and since Banks discloses that it is known to use vacuum to move items. Regarding claim 8, the Examiner alleges that one in the art

would appreciate that since the bend formed in the panel is arc shaped, the apparatus used to form the bend would be arc shaped to ensure the proper curvature. Regarding claim 9, the Examiner acknowledges that references are silent as to bending the core with a roller. The Examiner alleges that the use of a roller to press something into a shape is well-known and conventional in the bonding arts and takes the position that it would have been obvious for that reason. Regarding claim 14, the Examiner alleges that while Banks does not specifically disclose a honeycomb panel with foam in the cells, it does disclose a foam panel and a honeycomb panel and that the apparatus can be used for other types of commonly used panels. The Examiner takes the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to bend a honeycomb panel with foam in the cells on the alleged grounds that it is a well-known type of panel and that Banks discloses that the apparatus can be used for any type of panel.

This rejection is traversed. As discussed above, the process of the present invention is not a process of merely detaching a first surface, bending the core material/second surface and then reattaching the first surface. In the process of the present invention, a first surface is detached and moved so as to create a bend or curve or arc-shape. Then, after adhesive is applied, the core material/ second surface plate is bent so that it adheres to the first surface plate. In doing so, the laminated material would take the shape that was first imparted to the first surface plate.

As discussed above, this technique is neither taught nor suggested by Banks and Palfey. Banks discloses a process wherein a surface of a laminated material is

heated to form a bubble that detaches from the core material at the point where the material is bent. Thereafter, extra material in the bend is formed into a flap that is collapsed and folded. Banks does not disclose or suggest any method wherein a first surface on one end of the laminated material is separated and bent and then the rest of the core material/second surface is bent so that the core material reattaches to the first surface. The Examiner's allegation that it would have been obvious to heat and remove the portion of the inner panel of Banks extending from the bend to the edge and re-applying it after bending is unsupported by anything disclosed or suggested in Banks and is merely hindsight based on the Applicant's disclosure.

Palfey discloses methods wherein a core material laminated on one side is bent and then the second side is laminated or a detached layer is reattached. As discussed above, Palfey does not disclose or suggest any method wherein a first panel is detached from a laminate and bent and then a core material having a second panel is bent to adhere to the first panel.

Further, as discussed above, Banks and Palfey, alone or in combination do not disclose or suggest any method wherein, in bending a laminated material, the bending of the first surface plate is performed by sucking the other end of the first surface plate by a base positioned at the other end of the first surface plate and moving the base so that the first surface plate is moved in a direction to separate it from the core material. The Examiner alleges that a person skilled in the art would appreciate that a vacuum could be used to bend the panel prior to bending the core. However, the only support given for this allegation is that Palfey discloses that a panel is bent and Banks discloses that a vacuum is used to move items. Clearly, these disclosures do not add up to the present invention. As noted above, Palfey

does not disclose or suggest a method of bending a laminated material wherein, on the end of the material where the bend is made, a first surface plate is moved to separate it from the base and create a bend and then, after adhesive is applied, the remainder of the laminated material, which consists of the core material and the second surface plate, is bent so that it adheres to the first surface plate. Although Banks discloses a vacuum to hold panels in place or move panels into position, the reference does not disclose or suggest any method wherein a vacuum is used as a force for bending a material. Combining the two references would not lead a person skilled in the art to the invention of independent Claim 1. The Examiner's allegation that a person skilled in the art would appreciate that a vacuum could be used to bend the first panel prior to bending the core is clearly based on hindsight based on the Applicant's disclosure.

Further, regarding Claims 8, 11, 12, 13, and 14, as discussed above, there is no motivation in either Palfey or Banks for bending a detached first surface into an arc-shape or fixing a first surface onto an arc-shaped apparatus to create an arc-shape because in these references, the shape of a detached surface has no relevance to the shape of the finished product. In contrast, in the present invention, the shape of the detached first surface is relevant, because in subsequent steps, the rest of the core material/second surface is bent so that the core material reattaches to the first surface. Therefore, the finished product has the shape and curvature that was first imparted to the detached first surface.

. Accordingly, it is respectfully submitted that Claims 1, 2 and 6 - 14 would not have been obvious over Banks and Palfey, alone or in combination.

Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that Claims 1, 2 and 6 - 14 are in condition for allowance. Favorable reconsideration is respectfully requested.

Should the Examiner believe that anything further is necessary to place this application in condition for allowance, the Examiner is requested to contact applicants' undersigned attorney at the telephone number listed below.

Kindly charge any additional fees due, or credit overpayment of fees, to Deposit Account No. 01-2135 (648.40365X00).

Respectfully submitted,
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